U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Statoil Eisenbarth Well Response - Removal Polrep
Initial Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: **POLREP #1**
Initial POLREP
Statoil Eisenbarth Well Response
TBD
Clarington, OH
Latitude: 39.6974000 Longitude: -80.8980000

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Opossum Creek confluence with the Ohio River.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The fire and explosion that occurred on the Eisenbarth Well Pad involved more than 25,000 gallons of various products that were staged and/or in use on the site. Upon USEPA arrival at approximately 2000 hours on June 28, 2104, numerous fires continued to burn on the well pad, uncontained run-off was exiting the site and entering an unnamed tributary of Opossum Creek to the south and west and flowback water from the Eisenbarth Well #7 was spilling onto the well pad. Initial air monitoring did not detect any concentrations of volatile organic compounds (VOCs) in the community downwind of the site. Initial inspections in the early hours of June 29, 2014 of Opossum Creek approximately 3.5 miles downstream of the site identified dead fish in the creek.

Initial reports identified the following products were involved and lost in the fire: ~250 gallons of hydrochloric acid (28%), ~7,040 gallons of GasPerm 1000 (terpenes, terpenoids, isopropanol, citrus extract, proprietary components), ~330 gallons of LCA-1 (paraffinic solvents), ~ 1900 gallons of LGC-36 UC (hydrotreated light petroleum distillate, guar gum), ~1000 gallons of BC-140 (monoethanolamine borate, ethylene glycol), ~3300 gallons of BE-9 (tributyl tetradecyl phosphonium chloride), ~30,000 gallons of WG-36 (polysaccharide gel), ~1,000 gallons of FR-66 (hydrotreated light petroleum distillate), ~9000 gallons of diesel fuel, ~300 gallons of motor and hydraulic oil.

Additionally, there was an inventory of shaped charges, primer cord and detonators on the site as well as three Cesium-137 radiological sources (2-100 millicurie and 1-55 millicurie) with unknown disposition as a result of the fire.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

On June 28, 2014 at approximately 0900, a fire and a subsequent explosion occurred at the Statoil Eisenbarth Well Pad located at 42240 Long Ridge Road in Clarington, Ohio. Preliminary reports suggests the fire to be the result of a broken hydraulic line that sprayed fluid onto hot equipment igniting it and spreading rapidly resulting in the loss of most of the equipment and chemicals on the pad. Several fire departments responded to the scene. Multiple explosions (estimated to be more than 30) generating shrapnel slowed fire suppression efforts. A 1-mile evacuation notice was issued for the area surrounding the Site affecting 25 residences. At approximately 1900, fire departments ceased fire-fighting efforts and left the scene. A water curtain was maintained, using pump lines on site, to prevent the fire from spreading to a trailer containing 1100 pounds of SP Breaker (an oxidizer), 200 pounds of soda ash and compressed gas cylinders of oxygen (3-2000 lb.), acetylene (2-2000 lb.), propane (6-20 lb.), among miscellaneous aerosol cans. Chemicals not consumed in the fire, water from firefighting efforts and flowback from the well head migrated into rock/soils on the pad and flowed off-site via sheet flow and catch basins located in the northwest and southeast corners of the pad. A minimum of 300,000 gallons of water was sprayed onto the fire as measured from free board

Unified Command was established and comprised of on-site representatives from USEPA, OEPA and Statoil.

At approximately, 0030 the well head was "shut-in" ceasing the release of flowback water onto the well pad. An air sample was collected immediately downwind of the well pad fires and subsequent analysis revealed detections of several volatile organic compounds but at low concentrations. Fires near the trailer containing the gas cylinders and the water curtain were extinguished. Due to the cessation of runoff from the Site and safety issues with the construction of the trench activities, the trench construction was halted until daylight. The western and southern slopes of the well pad have previously failed and consultation with a civil engineer was warranted before additional working of the slopes continued.

Inspection of the creek downstream of the incident identified evidence of a fish kill. OEPA notified ODNR Division of Wildlife and they responded and began an investigation of the fish kill by identifying and walking the length of the impacted surface waters.

USEPA collected two water samples from Opossum Creek approximately 3.5 miles downstream of the well pad.

Statoil worked to extinguish remaining fires with assistance from Clarington Volunteer Fire Department. Once fires were extinguished, construction of a berm near the pad was begun to contain spilled liquids and future runoff from the well pad. Construction of a siphon dam near a ditch line leading to the southeast catch basin to contain spilled fluids and prevent off-site migration. Wild Well Control assessed the well head for leaks and determined that is was "shut-in" and no leaks were apparent.

Routine air monitoring and sampling was initiated by the RP in work areas and in residential areas. Air is being monitored for volatile organic compounds (VOCs), hydrogen sulfide (H_2S), sulfur dioxide (SO_2), benzene, Lower Explosive Limit (LEL), acid gases and dust (total, respirable, PM_{10} and $PM_{2.5}$). Background readings resulted in the lifting of the evacuation of the two remaining homes. Water sampling and monitoring was initiated by the RP of areas downstream of the well pad. Field measurements for pH, dissolved oxygen, specific conductance were all normal.

Radiological surveys were conducted on and around the pad to ascertain the status of the three Cesium-137 sources on Site using a Ludlum 192. All readings were background from 6-11 microrem/hr.

Worked as halted due to concerns on the status of the densometers. Notice was given to the Ohio Department of Health Bureau of Radiation Protection on the status of the densometers. Additional surveys of the area around the pad were conducted using a Ludlum 192 and surveys were conducted of the boots of people exiting the exclusion zone using a 2241-2 with a 44-9 probe. All readings on the 192 continued to be background as well as the 2241-2 readings staying with background ranges from 29-51 counts per minute. Surveys will continue until the integrity of the Cesium sources can be verified by Halliburton. Plans evaluate the sources for integrity were suspended due to lightning.

There was concern over the ability to analyze for and detect the primary component of BE-9 [tributyl tetradecyl phosphonium chloride (TTPC)] for which there is no approved standard

Cresol, naphthalene, phenol, and chlorides. Surface water sampling results indicated the presence of TPH, acetone, bis(2-ethylhexyl)phthalate, phenol and chlorides downstream of the well pad.

July 1, 2014

Unified Command Meeting: USEPA, OEPA, ODNR Oil & Gas, Statoil

Explosives on the well pad were evaluated and recovered for transportation off-site by Horizontal. Halliburton assessed the pad to ascertain the condition and quantities of remaining chemicals present. Fires continued to rekindle and Clarington Volunteer Fire Department was mobilized to assist in extinguishing them.

Due to the unknown cause of the fish kill, the potential for them to be scavenged and the large volume of decaying biomass having a continued negative impact on the creek, it was determined that recovery of the dead fish would be needed. US Fish and Wildlife Service (USFWS) arrived to evaluate the creek and concurred with the plan to recover dead fish and advised that there were no endangered or threatened species in the creek but the stream was a high quality habitat.

Air and water sampling continued. Water quality measurements were normal.

Air samples in the community were all non-detect for VOCs. Surface water sampling results indicated the presence of TPH, acetone, bromodichloromethane, chloroform, bis(2-ethylhexyl)phthalate and chlorides downstream of the well pad.

July 2, 2014

Unified Command Meeting: USEPA, OEPA, Statoil

Assessment of chemicals remaining on the well pad was completed. The earthen berm around the pad was completed, however the eastern side of the berm could not be keyed into native soils and could allow migration beneath. As a result, the southeast and northwest catch basins were plugged and converted to recovery sumps. The removal and transportation off-site of the densometers was completed.

Fires continued to rekindle on the pad and spread. Several options were evaluated and Statoil worked with Monroe County EMA to smother the fire with earthen material.

Recovery of dead fish from the creek began. The impacted area was divided into 4 divisions and would be walked and all dead aquatic life would be collected, counted and speciated and retained on-site. Access points would be identified and documented for rehabilitation if necessary. USFWS advised to minimize removal of any vegetation along the riparian zone and not to remove trees with bore sizes greater than 3 inches.

Air, water and sediment sampling continued. Water quality measurements indicated a lowering in the dissolved oxygen likely due to the decaying dead fish. Air results remain non-detect in the community.

Water and sediment sample results pending.

July 3, 2014

Due to space constraints on the well pad, arrangements were made to remove three large trailers, not involved in the fire, from the well pad. These trailers require permits for over road travel and OEPA coordinated escorts by Ohio State Troopers.

Other non-essential vehicles were removed from the well pad including a fuel truck containing 1,100 gallons of diesel fuel. Monroe County EMA was on site with a thermal camera to identify hot spots. No additional areas of significant concern were noted. Only 4 areas where only tires remained were noted. These areas will be monitored and addressed as needed. The burning tank containing WG-36 was smothered by pumping Barite (barium sulfate) into the top of the tank. External temperatures dropped throughout the day. Halliburton continued to recover FR-66 from the tanker truck and from pooled areas against the southeast corner of the earthen berm. Additionally, due to significant amounts of water being collected in the northwest catch basin, 24 hour vac truck operations have been on going.

Plans to begin assessing subsurface migration pathways to the south and west of the well pad were delayed due to underground utility marking issues. Soil sampling and geoprobing will begin tomorrow.

Fish collection was completed. In total, 11,116 dead fish were collected (20 different species), 3,519 crustaceans, 7 frogs and 20 salamanders. Due to the warm weather, number of days the fish were in the creek, scavenging, etc., the fish recovered were in advanced states of decomposition. Following the removal of this biomass, in stream dissolved oxygen readings began to return to normal after several days of low readings.

A visual inspection of the creek by USEPA and OEPA noted continued presence of some dead fish. Also noted was the presence of minnows and small mouth bass in portions of the creek. Caddisflies, mayflies and a dobsonfly larvae (of significant size) was noted in the lower reaches of Opossum Creek. Also, algae and snails were also noted returning to the creek.

Air and water sampling continued. Water quality measurements returning to normal ranges for dissolved oxygen. Air monitoring within the community was discontinued.

Air and water sample results pending.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

Pending

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

Develop plan to isolate the well bore.

Develop assessment plan to evaluate migration pathways off-site from the pad into surface waters and surface and subsurface soils and delineate impacted media on and off the well pad.

Ohio State Troopers

4. Personnel On Site

No information available at this time.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

6.1 Internet location of additional information/report

Pending

6.2 Reporting Schedule

Pending

7. Situational Reference Materials

No information available at this time.